REMARKS

Claim 129 - 142 are added.

Claim Rejections - 35 USC § 112

The specification has been objected to under 35 U.S.C. § 112, first paragraph, as failing to provide an enabling disclosure commensurate with the scope of the claims.

Applicants respectfully disagree for the reasons given below.

The Examiner states that "[t]he present specification is deemed to be enabled only for compositions compositions comprising $Ba_xLa_{5-x}Cu5O_y$." Applicants respectfully disagree. Applicants are not claiming a composition of matter or a method of forming a composition of matter. Applicants are claiming a method of flowing or passing a superconducting current through a high Tc superconducting material.

The Examiner further states that "[t]he art of high temperature (above 30°K) superconductors is an extremely unpredictable one. Small changes in composition can result in dramatic changes in or loss of superconducting properties." Applicants' claims are not directed to a composition of matter. Applicatnts' claims are directed to an a superconducting current flowing therein or caarying a superconducting current. The superconducting component is a transition metal oxide. Applicants discovered that transition metal oxides have superconducting onset or transition temperatures greater than 26°K. Applicants have enabled what they have discovered and claimed. The

Examiner's statement that "[s]mall changes in composition can result in dramatic changes in or loss of superconducting properties." has not been supported by any evidence not contained within applicants' teaching. Any teaching by applicants about the amounts of constituent and processing steps is part of applicants' enabling discolosure.

The Examiner further states that "[t]he amount and type of examples necessary to support broad claims increases as the predictability of the art decreases." Once applicants discovered that transition metal oxides were superconducting at temperatures greater than 26°K., it was within the skill of the art to apply applicants teaching to use other specific examples of transition metal oxide compounds for the methods claimed. The Examiner has not shown by evidence not contained within applicants teaching that the art of high TC superconductors is unprdictable in view of applicants' teaching.

The Examiner further states that "[c]laims broad enough to cover a large number of compositions that do not exhibit the desired properties fail to satisfy the requirements of 35 USC 112." The Examiner has not shown that the claims are broad enough to cover a large number of compositions that fail. Again the Examiner is applying an incorrect standard. The Examiner is applying a standard applicable to composition of matter. Applicants are not claiming a composition of matter. As shown by applicants prior comments applicants have in fact fully enabled the composition of matter. Therefore,

applicants have provided excess enablement for the claimed invention. The standard of enablement for a method of use is not the same as the standard of enablement for a composition of matter. Notwithstanding, it is well settled law that claims to a composition of matter can encompass a number of inoperable species. Applicants' claims do not cover inoperable species. The claims only encompass methods of flowing a superconducting current in transition metal oxides that are superconducting at temperatures in excess of 26°K. Those transition metal oxides that are not superconducting at temperatures in excess of 26°K are not encompassed by applicants claims reciting these limitations. Applicants note that a claim to a composition of matter is dominant to any use of that composition of matter and claims directed to a method of use of a composition of matter are necessarily of narrower scope than claims to the composition of matter. Applicants' claims do not encompass uses other than those to which the claims are limited to by the use limitations recited in the claims. Applicants' claims are directed to what they have discovered. Therefore, applicants' claims fully satisfy the requirements of 35 USC 112.

The Examiner further states that "[m]erely reciting a desired result does not overcome this failure." Applicants' claims do not "merely recite a desired result". Some claims recite flowing or passing passing a superconducting current through the material. Other claims recite "a superconducting current flowing " or "carrying a superconducting current" . This is not " a desired result", but an actual action occuring. If an apparatus, structure, device or invention is made with material that is not superconducting at temperatures in excess of 26°K , such mehtods, apparatus,

structure, device or invention will not be encompassed by the method claims reciting this limitation. Again applicants' claims are not directed to a chemical composition.

The Examiner further states "[i]n particular, the question arises: Will any layered perovskite material containing copper exhibit superconductivity?" The claims do not cover "any layered perovskite". The claims do not cover a material. The claims cover a method of using a material. Only those method, apparatuses, structurers, devices or inventions using the recited methods of the claims are covered by the claims. The Examiner is again applying an incorrect standard, a standard applicable to a chemical composition which is dominant to all uses of the chemical composition. Applicants' note, hovever, that they have fully enabled the compositions.

The Examiner further states "[i]t should be noted that at the time the invention was made, the theoretical mechanism of superconductivity in these materials was not well understood. That mechanism still is not understood." Whether or not this statement is true or not true is of no relevance to applicants claims which are directed to methods usong the compostions. The mechanism does not have to be understood to use the material as claimed by applicants. Applicants have discovered that transition metal oxides are useful passing or flowing superconducting currents therein at temperatures in excess of 26°K . The Examiners comments, if applicable, are applicable to claims directed to specific chemical compounds but not to applicants claims. Nor would they be applicable to gereric composition claims .

The Examiner further states "[a]ccordingly, there appears to be little factual or theoretical basis for extending the scope of the claims much beyond the proportions and materials actually demonstrated to exhibit high temperature superconductivity." Again this comment is not applicable to claims directed to methods of passing or flowing superconducting currents as claimed. Applicants have discovered that transition metal oxides are superconducting at temperatures in excess of 26°K are useful for mehtods as claimed.

The Examiner further states "[a] 'patent is not a hunting license. It is not a reward for the search, but a reward for its successful conclusion' ". Applicants are not claiming specific compounds that they have not described. Applicants are generically and specifically claiming what they have discovered. Thus applicants are not "hunting" for anything. Applicants successful conclusion is their discovery that transition metal oxides are superconducting at temperatures in excess of 26°K and can thus be used for methods of passing superconducting currents therein as claimed.

In the discussion in the prosecution of this application applicants have frequently refered to the book "Copper Oxide Superconductors" by Charles P. Poole, Jr., Timir Datta and Horacio A. Farach, John Wiley & Sons (1988). This book shall be referred to herein as Poole et al.. The preface of this book says "[t]his volume reviews the experimental aspects of the field of oxide superconductivity with transition

temperatures from 30 K to above 123 K, from the time of its discovery by Bednorz and Muller in April 1986 until a few months after the award of the Nobel Prize to them in October, 1987. " This passage is referring to applicants and their paper referred to at page 6 of applicants' specification. This book acknowledges that applicants are the discovers of the field of high temperature superconductivity. (See Attachment A)

Applicants note that it is generally recognized that it is not difficult to fabricate transition metal oxides and in particular copper metal oxides that are superconductive after the discovery by applicants that transition metal oxides are high Tc superconductors. Chapter 5 of the Poole et al. book entitled Preparation and Characterization of Samples" states at page 59 "[c]opper oxide superconductors with a purity sufficient to exhibit zero resistivity or to demonstrate levitation (Early) are not difficult to synthesize. We believe that this is at least partially responsible for the explosive worldwide growth in these materials. " Poole et al. further states at page 61 "[i]n this section three methods of preparation will be described, namely, the solid state, the coprecipitation , and the sol-gel techniques (Hatfi). The widely used solid-state technique permits off-the-shelf chemicals to be directly calcined into superconductors, and it requires little familiarity with the subtle physicochemical process involved in the transformation of a mixture of compounds into a superconductor." Poole et al. further states at pages 61-62 "[i]n the solid state reaction technique one starts with oxygen- rich compounds of the desired components such as oxides, nitrates or carbonates of Ba, Bi, La Sr, Tl, Y, or other elements. ... These compounds are mixed in the desired atomic ratios and

ground to a fine powder to facilitate the calcination process. Then these room-temperature-stabile salts are reacted by calcination for an extended period (~20 hr) at elevated temperatures (~900°C). This process may be repeated several times, with pulverizing and mixing of the partially calcined material at each step." This is generally the same as the specific examples provided by applicants and as generally described at pages 8, line 19, to page 9, line 5, of applicants' specification which states "The methods by which these superconductive compositions can be made can use known principles of ceramic fabrication, including the mixing of powders containing the rare earth or rare earth-like, alkaline earth, and transition metal elements, coprecipitation of these materials, and heating steps in oxygen or air. A particularly suitable superconducting material in accordance with this invention is one containing copper as the transition metal." (See Attachment A)

Consequently, applicants have fully enabled high T_c transition metal oxides and their claims.

In view of the changes to the claims and the remarks herein, the Examiner is respectfully requested to reconsider the above-identified application. If the Examiner wishes to discuss the application further, or if additional information would be required, the undersigned will cooperate fully to assist in the prosecution of this application.

Please charge any fee necessary to enter this paper to deposit account 09-0468.

If the above-identified Examiner's Action is a final Action, and if the above-identified application will be abandoned without further action by applicants, applicants file a Notice of Appeal to the Board of Appeals and Interferences appealing the final rejection of the claims in the above-identified Examiner's Action. Please charge deposit account 09-0468 any fee necessary to enter such Notice of Appeal.

Respectfully submitted,

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